

### REMARKS

This is intended as a full and complete response to the Office Action dated August 17, 2004, having a shortened statutory period for response set to expire on November 17, 2004. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-3, 5-9, 11-20, 22-27, 29-30, 38-44, 46-52, 54-61, 63-75, 84-91 and 102-112 remain pending in the application and are shown above. Claims 2, 11, 19, 29, 44, 52 and 61 have been cancelled by Applicants without prejudice. Claims 5, 22, 30, 42, 50, 59 and 108-112 are indicated to be allowable by the Examiner. Claims 1-3, 6-9, 11-20, 23-27, 29, 38-41, 43, 44, 46-49, 51, 52, 54-58, 60, 61, 63-75, 84-91 and 102-107 stand rejected by the Examiner. Reconsideration of the claims is respectfully requested for reasons presented below.

In a telephone interview with Examiner Bueker, Applicants acknowledged and accepted the allowance of claims 5, 22, 30, 42, 50, 59 and 108-112, in order to facilitate prosecution of the application. In addition, Applicants have amended claim 9 to read "the inlet being connected to the load-lock chamber and ~~substantially absent by~~ a foreline, the foreline having a length of less than about .5 m," in order to clarify an aspect of the invention. Also, Applicants cancelled dependent claims inconsistent with this clarification. Applicants respectfully request reconsideration of the pending claims for reasons presented below.

### REJECTION OF CLAIMS UNDER 35 U.S.C. § 112

Claims 1-3, 6-9, 11-20, 23-27, 29, 38-41, 43-44, 46-49, 51-52, 54-58, 60-61, 63-75, 84-91, 102-104 and 107 stand rejected under 35 USC § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. In particular, the Examiner has objected to dependent claims 2, 11, 19, 29, 44, 52 and 61 for including the language of "less than about 2m" because this language renders the independent claims vague and indefinite. Applicants have cancelled claims 2, 11, 19, 29, 44, 52 and 61 rendering the objection moot. Withdrawal of the rejection is respectfully requested.

With regard to claim 13, Applicants have amended the claim to correct the lack of antecedent basis. Applicants request that the objection be withdrawn.

#### **REJECTION OF CLAIMS UNDER 35 U.S.C. §§ 1.75(c) and 1.75(d)(1)**

Claims 2, 11, 19, 29, 44, 52 and 61 stand rejected under 35 U.S.C. §§ 1.75(c) and 1.75(d)(1) as being improper dependent form for failing to further limit the subject matter of a previous claim and for failing to provide proper antecedent basis. Applicants have cancelled the above noted claims rendering the objection moot.

#### **REJECTION OF CLAIMS UNDER 35 U.S.C. § 112**

Claims 2, 11, 19, 29, 44, 52 and 61 stand rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement. Applicants have cancelled the above noted claims rendering the objection moot.

#### **REJECTION OF CLAIMS UNDER 35 U.S.C. §§ 102(a) and 103(a)**

Claims 1, 6, 8 and 16 stand rejected under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over *Olson* (5,709,753). Applicants respectfully traverse the rejection.

Claim 1 recites the limitation of a "pump being substantially absent a foreline between the inlet of the pump and the chamber". This limitation is not taught or suggested in *Olson*. Thus, claim 1 is patentable over *Olson*. Claims 3 and 6-8 are patentable at least by virtue of their dependence from claim 1.

Claim 16 recites the limitation of "the pump being substantially absent a foreline between the inlet of the pump and the chamber". This limitation is not taught or suggested in *Olson*. Thus, claim 16 is patentable over *Olson*. Claims 17-18, 20 and 23 are patentable at least by virtue of their dependence from claim 16. Claims 2 and 19 have been cancelled rendering their rejection moot.

Therefore, *Olson*, alone or in combination, does not teach, show, or suggest the present invention, as recited in claim 1, 6, 8 and 16, and claims dependent thereon. Withdrawal of the rejection is respectfully requested.

**REJECTION OF CLAIMS UNDER 35 U.S.C. §§ 102(a) and 103(a)**

Claims 1, 6, 8, 9, 13, 14 and 16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Ackley*. Claims 2, 3, 11, 12, 19, 20 stand rejected under 35 U.S.C. § 103(a) as being obvious in view of *Ackley*.

Applicants respectfully traverse the rejection.

Claim 1 recites the limitation of a "pump being substantially absent a foreline between the inlet of the pump and the chamber". This limitation is not taught or suggested in *Ackley*. Thus, claim 1 is patentable over *Ackley*. Claims 3 and 6-8 are patentable at least by virtue of their dependence from claim 1.

Claim 9 recites the limitation of "the inlet being connected to the load-lock chamber and by a foreline, the foreline having a length of less than about .5 m". This limitation is not taught or suggested in *Ackley*. Thus, claim 9 is patentable over *Ackley*. Claims 12, 14 and 15 are patentable at least by virtue of their dependence from claim 9.

Claim 13 has been amended to overcome the objection raised by the Examiner in relation to the antecedent basis as discussed above in the section addressing the 35 U.S.C. § 112 rejections. Furthermore, *Ackley* does not teach, show or suggest a pump abutting the load-lock chamber as recited in Claim 13. Thus, claim 13 is patentable over *Ackley*.

Claim 16 recites the limitation of "the pump being substantially absent a foreline between the inlet of the pump and the chamber". This limitation is not taught or suggested in *Ackley*. Thus, claim 16 is patentable over *Ackley*. Claim 20 is patentable at least by virtue of their dependence from claim 16.

Claims 2, 11 and 19 have been cancelled rendering the rejection moot.

Withdrawal of the rejection is respectfully requested.

**REJECTION OF CLAIMS UNDER 35 U.S.C. §§ 102(a) and 103(a)**

Claims 1-3, 6-9, 11-13, 14-16, 19, 20, 23-27, 29, 65-71, 73, 75 and 84-90 stand rejected under 35 USC § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over *Kagaso* (JP 04-358531). Applicants respectfully traverse the rejection. *Kagaso* discloses that "the inner diameter of the exhaust pipe 26 is 50 mm, and the distance between the vessel 16 and the vacuum pump 30 is 2 m." (*Kagaso*,

translation, pg. 10, lines 21-23) *Kagaso* fails to disclose or render obvious a "pump being substantially absent a foreline between the inlet of the pump and the chamber" as claimed in the present invention.

Claim 1 recites the limitation of a "pump being substantially absent a foreline between the inlet of the pump and the chamber". This limitation is not taught or suggested in *Kagaso*. Thus, claim 1 is patentable over *Kagaso*. Claims 3 and 6-8 are patentable at least by virtue of their dependence from claim 1.

Claim 9 recites the limitation of a "pump having a foreline between the inlet of the pump and the chamber, the foreline having a length of less than about .5 m". This limitation is not taught or suggested in *Kagaso*. Thus, claim 9 is patentable over *Kagaso*. Claims 12, 14 and 15 are patentable at least by virtue of their dependence from claim 9.

Claim 13 has been amended to overcome the objection raised by the Examiner in relation to the antecedent basis as discussed above in the section addressing the 35 U.S.C. § 112 rejections. Furthermore, *Kagaso* does not teach, show or suggest a pump abutting the load-lock chamber as recited in Claim 13. Thus, claim 13 is patentable over *Kagaso*.

Claim 16 recites the limitation of "the pump being substantially absent a foreline between the inlet of the pump and the chamber". This limitation is not taught or suggested in *Kagaso*. Thus, claim 16 is patentable over *Kagaso*. Claims 17-18, 20 and 23 are patentable at least by virtue of their dependence from claim 16. Claims 2 and 19 have been cancelled rendering the rejection moot.

Claim 24 recites the limitation of a "pump being substantially absent a foreline between the inlet of the pump and the chamber". This limitation is not taught or suggested in *Kagaso*. Thus, claim 24 is patentable over *Kagaso*. Claims 25-27 are patentable at least by virtue of their dependence from claim 24.

Claims 65 - 71, 73, 75, and 84 - 90 stand rejected under §102(b) and §103(a) in view of *Kagaso*. *Kagaso* discloses that "the inner diameter of the exhaust pipe 26 is 50 mm, and the distance between the vessel 16 and the vacuum pump 30 is 2 m." (*Kagaso*, translation, pg. 10, lines 21-23) *Kagaso* fails to disclose or render obvious a "pump being substantially absent a foreline between the inlet of the pump and the

chamber" as claimed in claims 65 and 84. Therefore, claims 65 and 84 are patentable over *Kagaso*. Claims 66 - 71, 73 and 75 are patentable at least by virtue of their dependence from claim 65, and claims 85-90 are patentable at least by virtue of their dependence from claim 84.

Claims 2, 11, 19, 20 and 29 have been cancelled rendering the rejection moot. Withdrawal of the rejection is respectfully requested.

#### REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)

Claims 16, 19, 20 and 23 stand rejected under 35 USC § 103(a) as being unpatentable over *Kagaso* (04-358531) taken in view of *Hanakada* (JP 02-184333).

*Kagaso* discloses that "the inner diameter of the exhaust pipe 26 is 50 mm, and the distance between the vessel 16 and the vacuum pump 30 is 2 m." (*Kagaso*, translation, pg. 10, lines 21-23) *Kagaso* fails to disclose or render obvious the "the pump being substantially absent a foreline between the inlet of the pump and the chamber", as claimed in claim 16. *Hanakada* does not cure this deficiency. The Office Action states that *Hanakada* teaches the desirability of providing "a gas distributor in a loadlock chamber for providing inert gas to raise the pressure of the chamber to atmospheric pressure." Neither of the cited references disclose nor render obvious "the pump being substantially absent a foreline between the inlet of the pump and the chamber" as claimed. Therefore, claim 16 is patentable over *Kagaso* in view of *Hanakada*. Thus, claim 16 is patentable over *Kagaso* in view of *Hanakada*. Claims 17 and 23 are patentable at least by virtue of their dependence from claim 16. Claims 19 and 20 have been cancelled rendering the rejection moot. Withdrawal of the rejection is respectfully requested.

#### REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)

Claims 17 and 18 stand rejected under 35 USC § 103(a) as being unpatentable over *Kagaso* (04-358531) taken in view of *Hanakada* (JP 02-184333), taken in further view of *Suzuki* (6,080,679) and *Sato* (JP 07-167053).

Claim 17 and 18 stand rejected under §103(a) as being obvious over *Kagaso*, *Hanakada*, *Suzuki*, and *Sato*. *Kagaso* discloses that "the inner diameter of the exhaust

pipe 26 is 50 mm, and the distance between the vessel 16 and the vacuum pump 30 is 2 m." (*Kagaso*, translation, pg. 10, lines 21-23) *Kagaso* fails to disclose or render obvious "the pump being substantially absent a foreline between the inlet of the pump and the chamber" as claimed in independent claim 16. *Hanakada*, *Suzuki*, and *Sato* do not cure this deficiency. The Office Action states that *Hanakada* teaches the desirability of providing "a gas distributor in a loadlock chamber for providing inert gas to raise the pressure of the chamber to atmospheric pressure." The Office Action also states that "*Suzuki*...and *Sato*...teach the use of a low vacuum skimming pump (roughing pump) connected to a loadlock chamber with a high vacuum pump interposed between the loadlock and low vacuum pump." Neither of the cited references disclose nor render obvious the "the pump being substantially absent a foreline between the inlet of the pump and the chamber", as recited in independent claim 16 claim. Claims 17 and 18 depend from independent claim 16. Therefore, claims 17 and 18 are patentable over *Kagaso* in view of *Hanakada*, *Suzuki*, and *Sato*.

#### REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)

Claims 16-20 and 23 stand rejected under 35 USC § 103(a) as being unpatentable over *Kagaso* (04-358531) taken in view of *Suzuki* (6,080,679) or *Sato* (JP 07-167053). Applicants respectfully traverse the rejection.

Claims 16-20 and 23 stand rejected under §103(a) as being obvious over *Kagaso*, *Hanakada*, *Suzuki*, and *Sato*. *Kagaso* discloses that "the inner diameter of the exhaust pipe 26 is 50 mm, and the distance between the vessel 16 and the vacuum pump 30 is 2 m." (*Kagaso*, translation, pg. 10, lines 21-23) *Kagaso* fails to disclose or render obvious "the pump being substantially absent a foreline between the inlet of the pump and the chamber" as claimed in independent claim 16. *Hanakada*, *Suzuki*, and *Sato* do not cure this deficiency. The Office Action states that *Hanakada* teaches the desirability of providing "a gas distributor in a loadlock chamber for providing inert gas to raise the pressure of the chamber to atmospheric pressure." The Office Action also states that "*Suzuki*...and *Sato*...teach the use of a low vacuum skimming pump (roughing pump) connected to a loadlock chamber with a high vacuum pump interposed between the loadlock and low vacuum pump." Neither of the cited references disclose

nor render obvious the "the pump being substantially absent a foreline between the Inlet of the pump and the chamber", as recited in independent claim 16 claim. Therefore, claim 16 is patentable over *Kagaso* in view of *Suzuki* or *Sato*. Claims 17, 18, 20 and 23 depend from independent claim 16. Claims 17, 18, 20 and 23 are patentable at least by virtue of their dependence from claim 16. Claim 19 has been cancelled rendering the rejection moot. Withdrawal of the rejection is respectfully requested.

#### REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)

Claims 72, 74 and 91 stand rejected under 35 USC § 103(a) as being unpatentable over *Kagaso* (04-358531) taken in view of *Beyer* (5,944,049). Applicants respectfully traverse the rejection.

Claims 72 and 74 depend from claim 65, and claim 91 depends from claim 84. As discussed above, *Kagaso* discloses that "the inner diameter of the exhaust pipe 26 is 50 mm, and the distance between the vessel 16 and the vacuum pump 30 is 2 m." (*Kagaso*, translation, pg. 10, lines 21-23) *Kagaso* fails to disclose or render obvious a "pump being substantially absent a foreline between the inlet of the pump and the chamber" as claimed in claims 65 and 84. Therefore, claims 65 and 84 are patentable over *Kagaso*. Claims 72 and 74 are patentable at least by virtue of their dependence from claim 65, and claim 91 is patentable at least by virtue of their dependence from claim 84. Withdrawal of the rejection is respectfully requested.

#### REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)

Claims 96 and 105 stand rejected under 35 USC § 103(a) as being unpatentable over *Arami* (5,575,853) taken in view of *Beyer* (5,944,049) and *Kagaso*. Applicants respectfully traverse the rejection.

In the last response, claim 96 was cancelled without prejudice rendering the rejection moot.

Claim 105 was rejected over *Arami* in view of *Beyer* and *Kagaso*. *Arami* discloses that "dry pump 27 is located in a utility box that is some distance from the processing chamber 2 within the clean room, a long auxiliary pipeline 26 of approximately 10 to 12 m is used." (col. 5, lines 13-16) *Kagaso* discloses that "the inner

diameter of the exhaust pipe 26 is 50 mm, and the distance between the vessel 16 and the vacuum pump 30 is 2 m." (*Kagaso*, translation, pg. 10, lines 21-23) *Arami* and *Kagaso* fail to disclose or render obvious "a length of less than about 2 meters" as claimed. Additionally, there would have been no motivation to combine *Arami* with *Kagaso* and *Beyer* since *Arami* teaches the use of longer pipes. Therefore, claim 105 is patentable over *Arami* in view of *Beyer* and *Kagaso*. Withdrawal of the rejection is respectfully requested.

#### REJECTION OF CLAIMS UNDER 35 U.S.C. §§ 102(a) and 103(a)

Claims 1, 6-8, 16-18, 23-27, 38, 40, 43, 46, 47, 48, 51, 54, 55, 102 and 104 and 16 stand rejected under 35 USC § 102(a) as anticipated by or, in the alternative, under 35 USC § 103(a) as obvious over *Beyer* (5,944,049). Applicants respectfully traverse the rejection.

Claim 1 recites the limitation of a "pump being substantially absent a foreline between the inlet of the pump and the chamber", which is a limitation not found in *Beyer*. Claims 3 and 6-8 are patentable at least by virtue of their dependence from claim 1.

Claim 16 recites the limitation of a "pump being substantially absent a foreline between the inlet of the pump and the chamber", which is a limitation not found in *Beyer*. Claims 17-20 and 23 are patentable at least by virtue of their dependence from claim 16.

Claim 24 recites the limitation of a "pump being substantially absent a foreline between the inlet of the pump and the chamber". This limitation is not taught or suggested in *Beyer*. Thus, claim 24 is patentable over *Beyer*. Claims 25-27 are patentable at least by virtue of their dependence from claim 24.

Claim 38 recites the limitation of "the inlet ports being connected directly to the chambers or first and second pumps substantially without forelines". This limitation is not taught by *Beyer*. Claims 39, 40, 41, 43, 46 and 47 are patentable at least by virtue of their dependence from claim 38.

Claim 48 recites the limitation of "the inlet ports being connected directly to the chambers or first and second pumps substantially without forelines". This limitation is



not taught by *Beyer*. Claims 49, 51, 54, and 55 are patentable at least by virtue of their dependence from claim 48.

Claims 102 and 104 recite the limitations of "the pump being substantially absent a foreline between the inlet of the pump and the chamber" and "the pre-vacuum pump being substantially absent a foreline between the inlet of the pump and the process chamber", respectively. The limitations of 102 and 104 are not taught by *Beyer*. Therefore, claims 102 and 104 are patentable over *Beyer*.

Claims 29, 44 and 52 have been cancelled. Withdrawal of the rejection is respectfully requested.

#### **REJECTION OF CLAIMS UNDER 35 U.S.C. §§ 102(a) and 103(a)**

Claims 38-41, 46, 48, 49, 54, 58, 63 and 64 stand rejected under 35 USC § 102(a) as anticipated by or, in the alternative, under 35 USC § 103(a) as obvious over *Conrad* (5,733,104). Applicants respectfully traverse the rejection.

Claim 38 recited the limitation "the inlet ports being connected directly to the chambers or first and second pumps substantially without forelines". This limitation is not taught by *Conrad*. Claims 39, 40, 41, 46 and 47 are patentable at least by virtue of their dependence from claim 38.

Claim 48 recites the limitation "the inlet ports being connected directly to the chambers or first and second pumps substantially without forelines". This limitation is not taught by *Conrad*. Claims 49, 51, 54, and 55 are patentable at least by virtue of their dependence from claim 48.

Claim 56 recites the limitation "at least one of the inlet ports being connected directly to the chambers substantially without a foreline". This limitation is not taught by *Conrad*. Claims 57, 58, 60, 63, and 64 are patentable at least by virtue of their dependence from claim 56.

Claims 44, 52 and 61 have been cancelled. Withdrawal of the rejection is respectfully requested.

**REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)**

Claims 44, 52 and 57 stand rejected under 35 USC § 103(a) as being unpatentable over *Conrad* (5,733,104 taken in view of *Kagaso* (JP 04-358531) and *Arami* (5,575,853). Applicants respectfully traverse the rejection.

Claim 57 depends from allowable independent claim 56. Claim 56 recites the limitation of a "at least one of the inlet ports being connected directly to the chambers substantially without a foreline" which is a limitation not found in *Conrad*. Applicants respectfully request the allowance of claim 57 by virtue of its dependence from claim 56.

Claims 44, 52 and 61 have been cancelled rendering the rejection moot. Withdrawal of the rejection is respectfully requested.

**REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)**

Claims 43, 51 and 60 stand rejected under 35 USC § 103(a) as being unpatentable over *Conrad* (5,733,104) taken in view of *Beyer* (5,994,049). Applicants respectfully traverse the rejection.

Patentability of claims 43, 51, and 60 has been addressed in the previous section titled "*Conrad*".

Withdrawal of the rejection is respectfully requested.

**CONCLUSION**

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

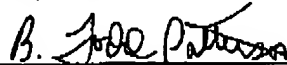
The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicants believe that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

PATENT

Atty. Dkt. No. APPM/2981/IBSS/CPS/BG

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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